ATTACHMENTS TO FY 2005 NON-COMPETING CONTINUATION GUIDANCE

Epidemiology and Laboratory Capacity (ELC)

for Infectious Diseases

(Under Program Announcements 01022 and 04040)

ATTACHMENT 1
ANTIMICROBIAL RESISTANCE

Purpose
Priorities for antimicrobial resistance activities follow the action items found in A Public Health Action Plan to Combat Antimicrobial Resistance Part I: Domestic Issues (http://www.cdc.gov/drugresistance/actionplan/index.htm). In particular, prevention activities, enhanced local surveillance capacity, and improvement of laboratory detection are areas where state efforts would be most effective in detecting and preventing antimicrobial resistant infections. The specific activities expected in these three areas are described below.

Funding Guidance
Amount requested by each applicant will vary depending on the range and scope of activities addressed.

Recipient Activities

Surveillance:

CDC Program Contacts:
Pneumococcal Surveillance – Cynthia Whitney, MD (404) 639-4727
General Surveillance – Todd Weber, MD (404) 639-2603

Proposals should address one or more Surveillance action items and must include an explanation of how the proposal will help to address top priority items 2 or 5 (development of a coordinated national plan to monitor antimicrobial resistance and patterns of antimicrobial use). It is the intent of this announcement to promote interactions between CDC and state and local health departments that will result in the fulfillment of top priority items 2 and 5. Projects should include developing and implementing programs to meet state and local needs that are consistent with development of a national plan, that are or will lead to systems compatible with the National Electronic Disease Surveillance System (NEDSS), that are comparable among multiple states, and that lead to better understanding of state and local "core capacity" for antimicrobial resistance surveillance. Proposals can include requests for travel and lodging to attend an antimicrobial resistance surveillance workshop tentatively scheduled for April 2005, in Atlanta, Georgia (not to exceed $3,000).

Drug-resistant Streptococcus pneumoniae (DRSP) Surveillance:

DRSP is one of the most serious public health threats currently challenging clinicians and state and local health officials. Introduction of the pneumococcal conjugate vaccine may result in changes in the prevalence of resistant pneumococci. Surveillance data are critical for monitoring trends and evaluating prevention efforts. State or local health department personnel may consider developing active, population-based or sentinel models to track DRSP, and may consider combining surveillance methods (e.g., aggregated antibiograms with sentinel) to obtain data that support applicant goals and objectives. Applicants using sentinel surveillance should also consider using a population-based method (such as aggregated antibiograms) initially to determine representativeness of their system. Surveillance methods could include either collection of selected isolates for testing in a reference laboratory or the use of resistance data previously generated by clinical laboratories. Additionally, applicants may include a component in their surveillance system for the tracking of rare (e.g., fluoroquinolone-resistant pneumococci) or not yet reported (e.g., vancomycin-nonsusceptible pneumococci) resistance patterns. Applicants are encouraged to define surveillance activities to be conducted routinely at the state (or local applicant) level, the minimum core capacity required to achieve their goals, and the possibility of integrating DRSP surveillance with existing systems.

Methicillin-resistant S. aureus (MRSA) Disease Surveillance: With the emergence of vancomycin-resistant Staphylococcus aureus and community associated methicillin-resistant S. aureus (MRSA) disease in persons without established risk factors, monitoring of MRSA disease from a local, regional, and national standpoint is increasingly important. Several state-based initiatives can enhance epidemiology and laboratory capacity to monitor and detect antimicrobial resistance in S. aureus disease. Health departments can improve communication with clinical microbiology laboratories including dissemination of instructions on proper detection, saving, and reporting of isolates suspicious for decreased susceptibility to vancomycin. State health departments can engage clinical microbiology laboratories and hospital infection control staff to begin state-based surveillance of MRSA. Either sentinel surveillance or population-based surveillance can achieve the objectives to increase awareness among healthcare providers and monitor the impact of prevention programs (e.g., CDC's Prevent Antimicrobial Resistance Campaign, see http://www.cdc.gov/drugresistance/healthcare/). Applicants are encouraged to utilize a strategy consistent with the CDC's National Healthcare Safety Network (NHSN) to provide meaningful hospital, state, regional, and national data on MRSA disease.

NHSN is an integrated NEDSS-compatible surveillance system administered by NCID's Division of Healthcare Quality Promotion for reporting healthcare-associated infections data.

Educational Efforts to Prevent Antimicrobial Resistance and Promote Appropriate Antibiotic Use

CDC Program Contact:
Erica Haller-Stevenson, CHES
Tel: (404) 371-5273
Email: ehallerstevenson@cdc.gov

The purpose of this project is to assist local-level agencies in developing and implementing health communication efforts and behavior change interventions that prevent antimicrobial resistance and promote appropriate antibiotic use. This year, applicants are encouraged to submit proposals describing collaborative efforts which address multiple determinants of antibiotic resistance and result in educational efforts to prevent antimicrobial resistance and promote appropriate antibiotic use in the community, in healthcare settings, and in agriculture. Proposals should address action items in the Public Health Action Plan to Combat Antimicrobial Resistance available on the internet at: http://www.cdc.gov/drugresistance/actionplan/.

Relevant action items include:
(25) Conduct a public health education campaign to promote appropriate antimicrobial use.
(26) Develop and facilitate the implementation of educational and behavioral interventions that will assist clinicians in appropriate antimicrobial prescribing.
(43) Conduct a public health campaign to promote hand hygiene and other hygienic practices, as well as other behaviors that prevent the transmission of infectious organisms.
(44) Facilitate and support the activities of infection control programs in health care settings as a component of medical care. Promote infection control education at all stages of training and practice for all health care workers who have contact with patients.
(57) Work with veterinary and agricultural communities to help educate users of veterinary and agricultural antimicrobials about AR issues, and promote the implementation and evaluation of guidelines.

Three distinct CDC programs work towards the goal of preventing antimicrobial resistance and promoting appropriate antibiotic use.

Proposals may include educational efforts supporting one or more of the following programs:

- Get Smart: Know When Antibiotics Work targets both clinicians and the general public to promote the appropriate use of antibiotics in outpatient community settings. CDC and other groups around the country have developed educational materials and behavior change strategies which promote the appropriate use of antibiotics for the treatment of outpatient respiratory infections. Projects may create new materials or use existing materials from CDC or other groups. Projects will be considered more favorably if they address multiple target audiences (i.e. patients and providers) and incorporate lessons learned from previous intervention studies. See www.cdc.gov/getsmart for more information.

- The Campaign to Prevent Antimicrobial Resistance in Healthcare Settings works to improve clinicians' infection control practices (e.g., hand hygiene) and antimicrobial prescribing practices. The campaign centers on four main strategies: prevent infection, diagnose and treat infection, use antimicrobials wisely, and prevent transmission. Educational materials and tools have been developed for five specific patient populations: hospitalized adults, dialysis patients, surgical patients, hospitalized children, and long-term care patients. Projects should promote the implementation of the campaign's evidence-based prevention steps and create new or use existing CDC materials to promote behavioral change in clinicians and their adherence to these steps. See http://www.cdc.gov/drugresistance/healthcare for more information and technical assistance.

- Get Smart: Know When Antibiotics Work on the Farm works to prevent the emergence and spread of antimicrobial resistance resulting from the use of antimicrobial agents in food-producing and companion animals. Applicants are encouraged extend their Get Smart activities to include appropriate use of antimicrobial agents in animals. In particular, health departments may wish to collaborate with the state veterinary diagnostic laboratory and veterinary school, if available, to create educational materials and behavioral change strategies which promote appropriate use of antimicrobials. State public health veterinarians will likely be key partners in such activities. Guidelines for appropriate use of antimicrobials in food-producing animals are listed in the World Health Organization's Global Principles for Containment of Antimicrobial Resistance in Animals for Food:

www.who.int/emc/diseases/zoo/who_global/principles/index.htm. CDC's NARMS staff and website, www.cdc.gov/narms, are available for technical assistance.

The following approaches are suggested for all educational efforts to prevent antimicrobial resistance and promote appropriate antibiotic use:

1. Utilize multiple communication and behavior change strategies, and target changes at multiple levels – individuals, groups, and organizations or institutions.
2. Include collaboration between a variety of partners (e.g. state and local health departments, health educators, epidemiologists, communication professionals, physicians and other health care providers, managed care organizations, professional medical associations, and community interest groups).
3. Include an evaluation component to monitor program implementation and assess impact. Impact assessment may be limited to measuring the extent to which the health communication messages reach the targeted audiences and whether the messages are understood.

Do not include surveillance or laboratory activities requests in this Education portion of the proposal.

While the amount funded will vary according to fund availability and the nature of the proposal, awards will generally range between $75,000 and $100,000.

Funds may be awarded for:

1. Salary for one staff project coordinator (health educator, behavioral scientist, etc.)
2. General supply expenses. Some printing and media efforts may also be funded.
3. Intra-state travel for local activities and meetings
4. Travel and lodging for one person to attend one or two national appropriate antibiotic use and/or surveillance conferences in Atlanta, Georgia (not to exceed $4,000)

Clinical Laboratory Quality Assurance

CDC Program Contact: Todd Weber, MD (404) 639-2603

Proposals should address one or more pertinent action items (e.g., 7, 8, 9) and include work by the applicant's Public Health

Laboratory and other partners to develop and promote training and proficiency testing among clinical laboratories in their states.

Physicians need accurate and timely information on the response of organisms to local prescribing patterns. An adequate quality assurance program for antimicrobial susceptibility testing, which would address these items, is lacking in many clinical microbiology laboratories. In part, this may be due to laboratories replacing highly experienced and knowledgeable personnel with laboratory generalists with little experience or interest in microbiology for the sake of cost savings. In addition, there is increasing complexity in susceptibility testing requiring up-to-date training.

Organizations interested in antimicrobial resistance surveillance (health care organizations, state and local health departments, federal government), rely on the information reported and isolates that are referred from clinical microbiology laboratories to assess levels of antimicrobial resistance and predict emergence of resistance and target interventions. This information must accurately reflect conditions at the local level.

To help quality assurance and control, applicants may consider holding workshops, offer training in local hospitals across the state, and off-site continuing education activities for technologists who perform microbiological testing. CDC has developed a training program http://www.phppo.cdc.gov/dls/master/default.asp which can serve as a training tool in such efforts. Secondly, health departments can address the urgent need to ensure all clinical microbiology laboratories are proficient in detecting vancomycin-resistance among staphylococci through a proficiency testing program. Applicants can also provide an antibiogram review service, in which hospitals submit antibiograms before they are released to providers for assessment of anomalies and errors, and ensure aggregated data are consistent with proper standards, using NCCLS M39A as a guide.

ATTACHMENT 2
FOODBORNE DISEASE

Purpose
To enhance capacity for detection, investigation, control, and reporting of foodborne diseases and improve laboratory-based surveillance for emerging foodborne pathogens, including antimicrobial resistant foodborne pathogens.

Funding Guidance
The amount requested per applicant will vary depending on the range and scope of activities addressed. Additional guidance is listed below each activity.

Recipient Activities (see list of CDC Program Contacts at end of this Attachment)

1. **Enhance capacity for investigation, control, and reporting of foodborne disease outbreaks.**

   Proposals will be evaluated on successful improvements in foodborne bacterial pathogen surveillance and foodborne outbreak investigation and reporting.

   For foodborne outbreak reporting, the aim is to improve the timeliness of reporting by decreasing the time between first onset of illness and when an outbreak report is entered into EFORS. Currently less than 30% of outbreaks are reported within a month of first onset. We have set a goal of 75% of outbreaks to have a PRELIMINARY report in EFORS within two months (60 days) of date the first case became ill (field #2 in the foodborne outbreak reporting form 52.13). While it is expected that some proportion of outbreaks will not be recognized within this time frame, ELC proposals will be evaluated based partially on reporting improvements to reach this goal.

   In addition, the completeness of certain EFORS variables will be reviewed. We have set a goal of 80% of reported outbreaks (final report) to have each of the following fields completed:
   - Numbers of lab-confirmed cases (field #3)
   - Ages of cases (field #4)
   - Sex of cases (field #5)
   - Number of hospitalizations (Field #11)
   - Number of deaths (field # 11)

ELC proposals will be evaluated based partially on reporting improvements to reach this goal.

For foodborne bacterial pathogen surveillance, we aim to improve the timeliness of reporting of the Public Health Laboratory Information System (PHLIS) data. Surveillance data should be reported to CDC at least on a monthly basis, either through the PHLIS system or by alternative submission routes (NEDSS data, when that system is available and transmission to CDC operational, will replace PHLIS data) ELC proposals will be evaluated based partially on the reporting of PHLIS data on at least a monthly basis.

A. Outbreak Investigations -- Personnel & Training

Outbreak investigations play a critical role in the control and prevention of foodborne disease. Timely and conclusive outbreak investigations are essential for removing contaminated food from commerce, including items that may have been intentionally contaminated, and invaluable for identifying fundamental flaws in food processing and production.

Although new surveillance tools have enhanced the recognition of foodborne disease outbreaks, the capacity of state and local health officials to successfully investigate outbreaks remains inadequate. Among an estimated 1,400 foodborne disease outbreaks reported to CDC annually, less than a third of the have an etiology or vehicle identified. There are increasing demands on state and local health departments to conduct timely, effective, and cross-jurisdictional outbreak investigations. These investigations require sufficient personnel, specialized training (e.g., the analysis of epidemiologic data related to clusters detected through PulseNet), and data collection tools that facilitate sharing of information with other jurisdictions.

Funds are expected to be available to support hiring of MPH-level epidemiologists dedicated to the investigation and reporting of foodborne disease outbreaks and/or the development of new tools to enhance the timeliness and efficiency of outbreak investigations. In addition, funds are expected to be available to support the training of local and state workers in foodborne disease outbreak investigation methodology, including equipment and educational material for training sessions, travel to and from training sessions and

refresher courses. Travel to the CDC sponsored national foodborne epidemiogists meeting should be a high priority training opportunity. For information concerning this meeting, you can contact Christopher Braden, M.D. at the Foodborne and Diarrheal Diseases Branch, CDC (404-639-2206; crb5@cdc.gov).

Proposals should range from approximately $5,000 to $75,000.

Progress Report – Outbreak Inv. Special Instructions:

1. List all foodborne epidemiologist staff supported by this cooperative agreement with percentage of time and hours spent on this activity. Highlight new staff added in the last year and include the date they started.
   example: John Smith, 50% of time (20 hours a week)
   Chris Smith (new) start 8/4/04 100% of time.

2. List the training funded by this cooperative agreement in the last year.
   example: Chris Smith, Epi Ready course, Chicago, 8/20/04

B. Electronic Foodborne Outbreak Reporting System (EFORS)

Since 1973, CDC has collected information on foodborne disease outbreaks from all causes through the Foodborne Outbreak Reporting System . As the only national database of foodborne outbreaks, this is an important source of information for all agencies involved with food safety.

With input from several states, CDC has developed an internet-based reporting system known as the Electronic Foodborne Outbreak Reporting System (EFORS). This system provides an alternative to paper-based reporting and greatly enhances the consistency of data through the use of pull down pick lists. Personnel in all states have received training on the use of EFORS and it has over 8,000 outbreaks in it’s databases. EFORS is not limited to reporting from states to CDC; it may also be used to send reports from counties and local health departments to the state.

Funds are available to support supplies, computer equipment and data entry personell necessary for sites to maintain and enhance EFORS reporting.

Proposals should range between approximately $2,000 to $20,000.

Progress Report – EFORS Special Instructions:

Please briefly describe the personnel and procedures for reporting foodborne outbreaks using EFORS. Please also provide the statistics below:

EFORS Statistics
for 12-Month period of October 2003 – September 2004

% EFORS preliminary reports submitted within 60 days of illness onset for first case	% EFORS reports with number of laboratory-confirmed cases indicated	% EFORS reports with age of cases indicated	% EFORS reports with sex of cases indicated	% EFORS reports with number of hospitalized cases indicated	% EFORS reports with number of deaths indicated

C. Collection and Transport of Specimens

A large proportion (65%) of foodborne disease outbreaks are of unknown etiology. Identifying an infectious or toxic cause requires rapid collection and transport of appropriate clinical specimens during an outbreak.

Funds are expected to be available to support the development of a mail-out/mail-in specimen collection kit to assist in obtaining specimens from patients; to explore the possibility of using a courier delivery system to transport clinical specimens from patients to the local health department and from the local health department to the state; and to educate staff regarding the appropriate collection of specimens, and to provide specimen collection material.

In your proposal, briefly describe the existing or proposed system used to enhance collection of foodborne outbreak-associated specimens for laboratory testing. Describe any changes to existing system over the past year.

Proposals should range between approximately $5,000 - $10,000.

2.Improve laboratory-based surveillance for emerging foodborne pathogens

A. PulseNet

The PulseNet network has revolutionized foodborne disease surveillance by allowing near real-time DNA “fingerprinting” of foodborne pathogenic bacteria by state and local public health laboratories using rapid (one-day) and highly standardized PFGE protocols and by enabling the rapid comparison of these DNA “fingerprints” to a national database of “fingerprint” patterns for each foodborne bacterial pathogen. PulseNet makes rapid detection of clusters of foodborne illnesses possible and provides an early warning for public health investigation and intervention. For the system to function optimally, all laboratories on the network must perform PFGE typing of bacteria under routine surveillance in a standardized and timely manner, analyze results, and transmit all subtyping results and associated information to the national database without delay.

Funds are available for participants to continue to participate in PulseNet and perform real-time PFGE typing of foodborne pathogenic bacteria using PulseNet standardized protocols (e.g., supplies, additional equipment required to perform additional testing, and personnel needed to perform the laboratory tests in a timely manner). Where appropriate, proposals should include personnel to analyze PFGE data and follow-up on any clusters that are identified.

Proposals should range between approximately $20,000 to $50,000.

PulseNet Area Laboratories

Ongoing support is available for state public health laboratories that are designated as PulseNet Area Laboratories. State public health laboratories in Massachusetts, Michigan, Texas, Utah, Virginia, and Washington have been previously funded through the ELC program for their work as PulseNet Area Laboratories. Funds are available to support PulseNet Area Laboratories to conduct the following activities (in addition to general PulseNet activities above):

1. Provide laboratory bench training, technical guidance

and scientific expertise to PulseNet participating states within their designated area.
2. Serve as a resource for surge capacity testing and reference capabilities in response to large foodborne outbreaks or potential threats of bioterrorism that may occur locally or nationally.
3. Perform enhanced surveillance and subtyping of foodborne pathogens and/or rare pathogens (i.e. Vibrio spp., non-Typhimurium Salmonella serotypes, Campylobacter spp.).
4. Provide a core unit of experienced scientists to participate in the evaluation of procedures and testing initiatives in collaboration with CDC scientific staff (i.e. Evaluations of Universal Standard Strains, procedural changes and/or improvements, software programs).
5. Actively participate in evaluation and validation projects for next generation subtyping methods for PulseNet.
6. Provide recommendations and guidance with respect to laboratory testing or program issues (i.e. Non-culture based methods).
7. Collaborate with CDC to develop a PulseNet "state perspective" and making recommendations in order to strengthen PulseNet for all participants.
8. Serve as host sites for annual PulseNet update meetings and training conferences.

Proposals should be for up to $60,000. These additional funds may be used for partial or full support of additional laboratory personnel, laboratory supplies and consumables needed to conduct Area Laboratory activities; additional equipment needed for PulseNet operations; and travel within their designated area to provide technical and troubleshooting assistance.

Progress Report – PulseNet Special Instructions:

1. List all laboratory staff, percentage of time and hours spent solely on PFGE. Highlight any new staff added in the last year and add the date they started.
   example: John Smith, 50% of time (20 hours a week) on PFGE
   Chris Smith (new) start 8/4/04, 100% of time

2. List any PulseNet lab certifications submitted to CDC by your lab in the last year, and the date of submission.

example: John Smith submitted certification for *Campylobacter* on 8/17/04. Certification results received on 9/23/04.

3. List total number of PFGE gels run in your laboratory in the last year (October 2003 – September 2004), regardless of organism (QC gels should be included).

4. Complete the following table:

PulseNet General Statistics
for 12-Month period of October 2003 – September 2004

	Total # of isolates received Oct 03 – Sept 04	Total # of isolates run by PFGE	How many isolates were run with primary enzyme?	How many isolates were run with secondary enzyme?
E. coli				
Listeria				
Shigella				
Salmonella				
Campylobacter				

B. Surveillance for Shiga toxin-producing E. coli

Although E. coli O157:H7 is widely recognized as an important cause of foodborne illness in the United States, other serotypes of Shiga toxin-producing E. coli (non-O157 STEC) can also cause diarrhea, hemorrhagic colitis, hemolytic uremic syndrome (HUS), and death. Unlike E. coli O157:H7, these non-O157 STEC strains are not readily detected by simple culture methods. Consequently, little is known about their epidemiology or overall public health significance. The availability of commercial assays that can detect non-O157 STEC makes efforts to monitor the prevalence of these organisms practical. However, it may be difficult to obtain isolates from clinical laboratories for characterization (serotype) at public health laboratories.

Funds are available for states to enhance capacity (supplies) to detect and characterize non-O157 STEC and for the transport of isolates from clinical laboratories to public health laboratories.

In the proposal, briefly describe your laboratory capacity to identify and characterize Shiga toxin-producing *E. coli*. Describe any changes in the past year. Also include in your description any educational programs, services, or materials used to obtain samples or isolates from clinical laboratories for identification and characterization at the public health laboratory.

Proposals should range up to $20,000.

C. Telediagnosis and molecular diagnosis of parasitic diseases through DPDx

The DPDx project supports two distinct diagnostic and training approaches to improve the level of expertise for diagnosis of foodborne and other parasitic diseases in the US: a- Internet-based communication, including exchanging of images captured from diagnostic specimen (telediagnosis); and b-molecular diagnosis. By using internet-based communication, laboratories can routinely use telediagnosis for diagnostic assistance. Telediagnosis assistance can provide definitive or screening diagnostic results on parasitic cases in minutes to hours. This allows laboratories to more efficiently address difficult diagnostic cases in normal or outbreak situations, and to disseminate information more rapidly. DPDx also provides training to laboratorians on diagnostic approaches, including telediagnosis. Molecular techniques have become an important approach in specific identification of infectious agents, including parasites. Selected PCR tests have been integrated into the routine CDC diagnostic parasitology activities and can be implemented in public health laboratories to provide superior standards diagnostic results quality assurance. Implementation of molecular techniques also provides the laboratories with the infra-structure to gather data on genetic diversity of parasites, which can be extremely useful in epidemiologic investigations.

Funds are available to develop capacity for telediagnosis and/or molecular diagnosis through DPDx. Funds may be used for purchasing necessary or upgrading existing equipment (digital cameras, PCR thermocyclers, DNA extractors),

software (image enhancement software, electronic database) reagents (PCR reagents, DNA extraction kits), and for participating in CDC training. ELC sites are encouraged to apply for funds to equip associated laboratories in their jurisdiction (e.g, local public health laboratories, laboratories in public hospitals).
Eligible laboratories may apply for telediganosis and molecular capacity simultaneously during the same funding cycle.

Proposals should range between $10,000 and $36,000.

Progress Report – DPDx:

1. List equipment purchased
2. List software purchased
3. Specify if funds were used to implement telediagnosis in remote laboratories. If yes, describe in detail the activities developed in the sites equipped using the telediagnosis equipment, e.g., type of activities such as training, how many telediagnosis consultations were addressed.
4. Describe any training activities developed by using telediagnosis approaches.
5. Describe any training needs that were addressed with the funds granted.
6. List how many telediagnosis inquiries were send to CDC or other reference laboratories. Describe how many cases were successfully addressed and how many needed a follow up or confirmatory diagnosis, e.g., PCR. Include and specify telediagnosis inquiries received by consulting labs as well.
7. Additional comments

D. Capacity for molecular identification of foodborne viruses

Accurate identification of foodborne and other viruses permits routine surveillance as well as rapid identification of outbreaks. Implementation in public health laboratories of molecular techniques for detection and typing of enteric viruses will allow for rapid identification of the infectious agent associated with both food safety and food security events. Strain identification will be enhanced by participation in an integrated system for molecular fingerprinting of enteric viruses.

Funds are available for equipment (thermocycler and agarose gel electrophoresis), supplies, and CDC training to develop

capacity to perform RT-PCR for enteric viruses and for molecular fingerprinting by nucleotide sequence analysis.

Proposals should range between $10,000 to $15,000.

Progress Report – Molecular Diagnosis Special Instructions:

1. List equipment purchased
2. List software purchased
3. Specify if funds were used to implement molecular diagnostic techniques in remote laboratories.
4. Describe any training needs addressed or training activities developed with funds received.
5. Specify whether the laboratory has validated the diagnostic procedure under CDC guidance.
6. Estimate how many specimens were tested or how many PCR reactions were performed for confirmatory diagnosis.
7. Estimate a goal for next FY regarding the use of molecular techniques. Include estimate of how many specimens may be processed and tested if possible.
8. Additional comments

E. NARMS

The National Antimicrobial Resistance Monitoring System (NARMS) was established in 1996 within the framework of the ELC Program. NARMS is an active surveillance system in which the primary objective is to monitor antimicrobial resistance among human isolates of non-typhoidal Salmonella, Salmonella serotype Typhi, Escherichia coli O157, and Shigella. Because NARMS data have been collected systematically since 1996, the system is able to monitor emerging patterns of resistance. Beginning in 2003, NARMS was nationwide; receiving isolates from all states. It is anticipated that all state public health laboratories will again participate in NARMS in 2005.

Funds are available for laboratory supplies to ship every 20th Salmonella isolate, every 20th Shigella isolate, every 20th E. coli O157 isolate, every S. Typhi, every Listeria, and every Vibrio isolate received at the state public health laboratory to CDC for antimicrobial susceptibility testing.

Proposals should range between approximately $4,000 to $7,500.

F. State-based interventions to mitigate antimicrobial resistance in Salmonella and other foodborne bacteria

Antimicrobial resistance in Salmonella and other foodborne bacteria is largely a consequence of the use of antimicrobial agents in food-producing animals. Efforts to mitigate such resistance include promotion of appropriate use of antimicrobial agents in food-producing animals. Laboratory-based surveillance data of antimicrobial resistance in Salmonella and other foodborne bacteria provide essential data to direct appropriate use interventions. Antimicrobial resistance data of human Salmonella isolates is available for state public health laboratories participating in the National Antimicrobial Resistance Monitoring System (NARMS); data of animal isolates is available in most state veterinary diagnostic laboratories.

Funds are available for participants to establish collaboration between the state public health laboratory and state veterinary diagnostic laboratory to facilitate the exchange of antimicrobial resistance data of Salmonella (and perhaps other genera of bacteria) between the two institutes, and to develop state-based interventions to mitigate antimicrobial resistance in Salmonella. Funds also are available for participants to establish collaboration between state public health departments and schools of veterinary medicine to assist in the development of species-specific (cattle, chicken, swine, turkeys) curricula for educating veterinary students on appropriate use of antimicrobials in veterinary medicine.

Proposals should range between approximately $5,000 to $50,000.

CDC Program Contacts for Foodborne Diseases:

EFORS/Surveillance: Chris Braden (404) 639-2206

Pulsenet/PulseNet Area Laboratories:
Bala Swaminathan (404) 639-3669
Dan Cameron (404) 639-2206

DPDx and Foodborne Parasites: Alex da Silva (770) 488-4072

Foodborne Viruses: Steve Monroe (404) 639-2391

NARMS: Tom Chiller (404) 371-5406

General (Specimen collection, State-based interventions):
Richard Skibicki (404) 639-2209

ATTACHMENT 3
HEPATITIS PREVENTION AND CONTROL

Hepatitis C Virus (HCV) Coordinators

CDC Program Contacts:
Hope King-Lewis (404) 371-5477
Victoria Moody (404) 371-5208

Purpose
Assist in the development, coordination, and evaluation of a program to prevent and control hepatitis C virus (HCV) infection that is integrated into existing public health prevention services and programs. Because HCV is bloodborne, its prevention and control should be integrated into settings that provide programs for prevention and control of other bloodborne virus infections (e.g., HBV, HIV). These settings include clinics for sexually transmitted diseases, drug treatment programs, HIV/AIDS counseling and testing sites, programs for high risk youth and corrections facilities. Innovative strategies to integrate viral hepatitis prevention activities into existing public health prevention programs are also encouraged; particularly those activities reaching high risk populations with comprehensive services.

Funding Guidance
Proposals should range between approximately $55,000 to $110,000.

Recipient Activities
Establish and maintain a focus in the health department responsible for the management, networking, and technical expertise required for successful integration of hepatitis C prevention and control activities into existing disease prevention program activities for bloodborne viral infections. Integration activities may include: 1) identifying public health and clinical activities in which HCV counseling and testing should be incorporated; 2) ensuring training of health care professionals in effective hepatitis C prevention activities; 3) developing and maintaining the capacity to provide HCV testing through public health or private diagnostic laboratories; 4) identifying resources for hepatitis A and hepatitis B vaccination of at-risk persons; 5) developing referral networks to comprehensively address the medical, social, and substance abuse treatment needs of HCV infected persons; 6) developing a state or city hepatitis plan; and 7) evaluating the effectiveness of HCV prevention activities.

ATTACHMENT 4
INFLUENZA SURVEILLANCE AND RESPONSE

CDC Program Contacts:
Keiji Fukuda, MD, MPH (404) 639-4563
Theresa Turski, MPH (404) 639-1585

Purpose

To improve the capacity of state laboratories to obtain appropriately collected respiratory samples, culture specimens for influenza viruses, and type and subtype influenza isolates. This will improve influenza surveillance and the nation's ability to respond to both annual epidemics and possible pandemics.

To expand and improve the U.S. Influenza Sentinel Provider Surveillance System in each state. The national goal for expanding the Sentinel Provider Surveillance System is to enroll a sufficient number of healthcare providers to have at least one regularly reporting provider for every 250,000 population (or 10 or more sentinel providers in states with small populations) so that at least 1,200 sentinel providers are enrolled nationwide who consistently provide reports during the influenza season.

To conduct year round influenza surveillance projects. Grantees that have an established active sentinel physician network and perform virologic isolation and typing and subtyping of influenza viruses at the state laboratory may submit proposals to expand surveillance to year round with reporting of both sentinel providers and isolate testing results.

If additional funding becomes available in FY 2005 we will support proposals to establish and maintain molecular testing techniques for influenza. This will allow states the ability to rapidly identify the type and sub-type of circulating influenza viruses from clinical specimens including the identification of novel influenza viruses such as H5 or H7. This will enhance the U.S. ability for early identification of novel influenza virus infections in humans.

Funding Guidance

Amount requested by each applicant will vary depending on the range and scope of activities addressed. Nonetheless, proposals for activities 1- 3 should not exceed $100,000. The fourth activity will be supported if additional funding becomes available and should be submitted as a discrete budget and narrative.

Recipient Activities
Applicants may submit proposals addressing any or all of the following areas:

1. Expanding laboratory capacity: Proposals to expand or maintain applicant laboratory capacity to perform virus isolation, typing and sub-typing of influenza viruses will be considered. Proposals should include provision for shipping specimens and performing testing of respiratory specimens submitted from sentinel providers free of charge.

2. Expansion of Sentinel Provider Surveillance System: Applicants should identify an influenza surveillance coordinator who will be responsible for recruiting and retaining sentinel physicians who will report each week (from October to May) on the number of cases of influenza-like illness and the total number of patients seen, coordinating submission of respiratory specimens for influenza culture, and interacting with CDC. A system of routine reporting of virologic isolates that can differentiate results of specimens submitted by sentinel physicians from other specimens is encouraged. Internet reporting by Sentinel Provider offices to transmit surveillance data to CDC is encouraged.

3. Year-Round Influenza Surveillance Activities: Applicants that meet the criteria listed under purpose are encouraged to incorporate sentinel physicians into the year round surveillance plan that includes laboratory-testing capacity for isolation, typing and subtyping of influenza viruses. Proposals should describe criteria for testing specimens year round and describe the mechanism for reporting to CDC beyond the typical influenza season of October to May.

The following new activity will be supported if funding is available. Please include a separate budget and narrative if you wish to submit a proposal for the following activity.

4. Enhanced laboratory capacity for conducting molecular testing techniques for influenza: Should additional funding become available, proposals to establish or maintain molecular testing techniques for influenza such as, real-time PCR testing capabilities for typing and sub-typing influenza viruses, including avian and novel viruses, will be supported. Applicants are encouraged to have proposals for purchase and use of equipment, affiliated supplies, staffing and reagents for influenza viral testing. Proposals should include

integration of existing equipment and staffing from within the state laboratory system when possible.

ATTACHMENT 5

NATIONAL ELECTRONIC DISEASE SURVEILLANCE SYSTEM (NEDSS)

Note: NEDSS Appendices A-E referenced below may be accessed at the following website:

http://www.cdc.gov/ncidod/osr/site/epi_lab/index.htm

CDC Program Contacts:
Program Operations: Angela Slaughter (404) 371-5357
Technical Development: Jason C. Hall (404) 371-5366

Purpose

1. To ensure a sustained focus and point of coordination in health departments for standards-based interoperable public health information systems activities addressing one or more of the Public Health Information Network (PHIN) functions and specifications (see Appendix A) and based on the NEDSS architecture.
2. To contribute to national preparedness efforts by facilitating implementation of the NEDSS Base System (NBS) (see Appendix B) in any state that has chosen to implement it.
3. To support projects that provide leadership in implementing key aspects of the NEDSS vision - to have integrated surveillance systems that can transfer appropriate public health, laboratory, and clinical data efficiently and securely over the Internet.

The goals of NEDSS are to enhance public health surveillance through approaches that achieve the following:

1. Emphasize, adopt, and promote national standards for electronic exchange of information;
2. Foster integration of public health surveillance and health information systems;
3. Support the development of surveillance systems according to a defined, national standards-based information systems architecture;
4. Develop direct electronic data exchanges between sources of data (such as health care providers or laboratories) and public health agencies;
5. Facilitate ready exchange of data, as appropriate, between local and state health departments, among states, and between states and CDC; and
6. Ensure stringent security and confidentiality of public health surveillance information in accordance with the Health

Insurance Portability and Accountability Act (HIPAA) and state regulations. NEDSS implementation constitutes a key part of broader activities to enhance and integrate public health systems in a Public Health Information Network (PHIN) (see Appendix A).

Beginning in 2002, support for activities related to PHIN-NEDSS has been provided through both the ELC cooperative agreement program and the BT Preparedness and Response cooperative agreements. CDC expects that the BT Preparedness and Response cooperative agreements will provide a substantial proportion of the support for the actual implementation of standards-based interoperable public health information systems, such as NEDSS, around the country. Accordingly, CDC encourages applicants to support routine NEDSS implementation activities through the BT Preparedness and Response cooperative agreement, to the extent that is consistent with their work plans for these funds.

Funding Guidance

Approximately $11,000,000 is expected to be available in fiscal year 2005 to fund (a) the continuation of NEDSS activities for currently funded ELC/NEDSS grantees and (b) to fund new and enhanced NEDSS activities that are consistent with the goals of NEDSS as described in this guidance. “Continuation” means funding needed to sustain existing NEDSS activities only (i.e. personnel infrastructure and ongoing expenses) – not previously funded one-time costs (e.g. equipment, software development or purchases). All proposed new/enhanced activities must be clearly distinguishable – by separate proposal narratives and separate budgets. It is expected that previous support from BT Preparedness and Response cooperative agreements will continue.

Depending on the scope of activities funded, individual awards will range from approximately $100,000 to $500,000.

Note that for new NEDSS applicants who propose to implement the NEDSS Base System or the PHIN Messaging System (see Appendix D), the amounts awarded will represent only a portion of CDC’s investment in these activities. The extramural awards will permit recipients to take advantage of CDC’s substantial current and expected future investment in development, software licensing fees (e.g., for SAS, for BEA WebLogic, and others), upgrades, and ongoing technical support and helpdesk functions.

Recipient Activities

In the application, provide a report on NEDSS activities currently conducted under the ELC cooperative agreement, if any. In addition, please provide a summary of information technology activities supported through any other CDC cooperative agreements, indicating their contributions to standards-based interoperable public health surveillance systems, including NEDSS. This summary will facilitate CDC's support for such interoperable systems and help avoid duplicative funding.

Submit a detailed and time-phased operational plan for performance of one or a combination of the following recipient NEDSS activities, as appropriate:

A. NEDSS Personnel Infrastructure - If not otherwise funded, develop and sustain a core personnel infrastructure to provide a focus for coordination, management, and implementation of standards-based interoperable public health information systems, including NEDSS. In most jurisdictions this will include the ability to perform the functions listed below, grouped under four categories, through existing or new personnel:

   NEDSS Lead - Assumes overall responsibility for implementation of NEDSS, including appropriate management, surveillance, and epidemiologic responsibilities. Serves as the principal point of contact with CDC for policy and for setting overall directions for NEDSS implementation.

   NEDSS Project Manager - Manages NEDSS technical implementation for the state or local jurisdiction. Serves as the principal technical contact for ongoing operations and contact with CDC.

   Operational Data Store (ODS) Manager (formerly Integrated Data Repository (IDR) Manager) - Assumes responsibility for operational maintenance and security of a jurisdiction's ODS, ensuring that the database management system is secure, supervising back-ups, maintaining appropriate personnel access and authorizations, overseeing the importing of data (including legacy data) into the ODS, and maintaining controlled vocabularies that will be used in the ODS. (This responsibility is described explicitly in relation to the NEDSS Base System, but state-developed systems may have analogous personnel needs.)

   Registry Manager - Assumes responsibility for maintaining data and functions in the ODS (including maintaining a person

registry that will be shared by multiple programs), triaging incoming data according to program needs and authorizations, supporting the de-duplication of person records, and directing the data and reports to appropriate personnel. (This responsibility is described explicitly in relation to the NEDSS Base System, but state-developed systems may have analogous personnel needs.)

B. Meeting Program Objectives - Define and execute specific public health surveillance activities, which implement key aspects of the NEDSS vision of integrated surveillance systems that transfer appropriate public health, laboratory, and clinical data efficiently and securely over the Internet. This guidance presents these activities in two groups - key activities and enhanced activities. Applicant may propose one or more of these activities, as appropriate. Note: All activities described below can be facilitated through The Messaging System or the NEDSS Base System, which incorporates the PHIN Messaging System. (See Technical Approaches, below)

Key Activities (1-4): These activities include the essential surveillance data exchanges within and between public health agencies. In addition, electronic laboratory-based reporting (ELR) from large national laboratories to public health agencies is included in this category.

1. Electronic exchange of information between local health departments and state health departments, using web browser-based access to the state health department. (In selected cases, this electronic exchange may take place via standards-based messaging.)
2. Electronic exchange of data within health departments between public health laboratories and epidemiology/surveillance activities.
3. Electronic laboratory-based reporting from large national laboratories to state health departments.
4. Electronic exchange of information between state health departments and the CDC via standards-based electronic messaging. Note that CDC plans to establish a date after which it will expect that surveillance data exchange with CDC will be done through electronic messaging according to functions and specifications established for standards-based interoperable public health information systems.

Enhanced Activities (5-8): In addition to the key activities described above, CDC is interested in providing support for

enhanced activities intended to support exchange of data between public health agencies and the clinical community through implementation of standards-based interoperable public health information systems. (For any of these activities, the use of standards-based messaging, e.g., facilitated by the NBS or the PHIN Messaging System, means that implementations with multiple clinical partners should follow comparable processes for information exchange and should not depend on unique solutions for each interface with a clinical partner.)

5. Electronic exchange of data between emergency departments and public health agencies
6. Electronic exchange of data between hospitals or hospital systems and public health agencies.
7. Electronic exchange of data between health care providers or provider organizations and public health agencies.
8. Electronic laboratory-based reporting from clinical laboratories that operate within a state to the state health department.

For any of these activities, identify and evaluate their impact on the practice of public health in your jurisdiction.

Technical Approaches: A choice of technical approaches, including the NEDSS Base System and the PHIN Messaging System, outlined below, can be taken to implement these public health activities. Note that while these applications provide the technical apparatus to exchange surveillance data with a variety of partners, these activities will in addition depend on establishing collaborations with the sources of these data.

1. NEDSS Base System - Implement the NEDSS Base System (NBS) (see Appendix B). Work with CDC to implement the NBS and participate in its evolution. Specifically, work with CDC and its representatives to discover new requirements and needs related to integration, workflow, and existing state architecture, among other things. For grantees involved in other NEDSS implementation activities, coordinate these activities with NBS implementation. The NBS incorporates the PHIN Messaging System as well as existing message translators for large, national laboratories (ELR) and specifications for Nationally Notifiable Disease (NND) messages. The NBS performs Key Activities 1, 3, and 4 described above and is intended to support Key Activity 2 and Enhanced Activities 5–8 as well. The NBS also at least partially addresses PHIN

functions 1, 2, 3, 5, & 6 (see Appendix A). CDC intends to facilitate implementation of the NBS in any state that is interested in implementing it. For more guidance on requesting funding to implement NBS, see Section 2 of Appendix B.

2. PHIN Messaging System (Message Transport) - Implement the PHIN Messaging System (PHIN MS) (see Appendix D), which is a CDC-developed ebXML (Java and XML)-based implementation of existing standards for the secure transmittal of messages across the Internet. It is designed to facilitate the implementation of the various services and standards it utilizes, while providing a generic interface for use by a variety of integration engines, message translators and other applications either custom developed or "off the shelf". (Note that to implement messaging activities, the partner sending surveillance data to the health department or receiving data from it would require analogous technical apparatus and arrangements for sending and receiving these standards-based electronic messages. The NBS incorporates PHIN MS for exchange of data between the states and CDC and also for ELR involving large laboratories and could be used to facilitate additional electronic messaging activities). For more details on PHIN MS see Appendix D. PHIN MS can be used for transporting data for key activities 1 – 4 and for enhanced activities 5 – 8. PHIN MS also at least partially addresses PHIN functions 1, 2, 4, 5, & 8 (see Appendix A). CDC encourages the use of existing message translators for large, national laboratories (ELR) and specifications for Nationally Notifiable Disease (NND) messages, developed by CDC as part of the NBS development, with PHIN MS. See 3 below for more information. [If states choose not to implement PHIN MS, a commercial or site-developed standards-compliant ebXML sending application should be used for sending and receiving electronic messages and laboratory reports (ELR) to support public health activities using security algorithms consistent with the NEDSS architecture and PHIN functions and specifications.

3. Message Formation & Parsing and Data Transformation – Develop data brokering for processing the various incoming and outgoing messages (i.e., capable of directing messages appropriately, parsing incoming messages, composing outgoing messages, and transforming data from parsed incoming messages into a database). CDC encourages the use of existing message translators for large, national laboratories (ELR) and specifications for Nationally Notifiable Disease (NND)

messages, developed by CDC as part of the NBS development. Messages must be developed according to PHIN standards for message conformance, which includes message formulation and content, by using the message Implementation Guides (see Appendix E)

C. Sustain Ongoing Standards-Based Interoperable Public Health Information Systems Development - Continue support to activities that have been previously funded, have not been completed, and do not have other sources of support. Funding may be lower than in previous years in some jurisdictions.

Coordination and Collaboration

All recipients should:

- Participate with CDC and its public health partners in overall NEDSS planning and development. Participate, as appropriate, in efforts to brief key partners on their progress and on their assessment of NEDSS implementation, including representatives of ASTHO, CSTE, APHL, NACCHO, NAPHSIS, NAHDO and CDC. Collaborate with CDC in the planning, design, and execution of all phases of these projects.

- Perform all development according to NEDSS data and architecture standards and focusing on PHIN functions and specifications.

- Use CDC developed PHIN Messaging Implementation Guides when possible.

- For ELC-NEDSS funded electronic reporting activities that involve large laboratories that report to multiple jurisdictions, 1) work with CDC to coordinate communications with the laboratory and 2) develop with CDC and other participants the architecture for efficient and secure brokering of data reported from the large laboratories.

- Integrate the planning, execution, and management of activities under this ELC-NEDSS funding with related efforts in categorical program areas, public health laboratories, and particularly in activities supported through prior ELC-NEDSS, HAN, and other CDC funding. In particular, coordinate with activities under the BT Preparedness and Response cooperative agreement.

CDC ACTIVITIES SPECIFIC TO NEDSS

- Provide Technical Assistance in the design, implementation, and ongoing support of program activities where warranted and requested. Provide a Helpdesk for questions about NEDSS implementation activities. Provide Technical Assistance to support deployment activities for NBS and PHIN MS.

- Provide software to PHIN MS recipients. Regardless of the award amount for these continuations, CDC will provide technical assistance for PHIN MS as part of its overall preparedness efforts.

- Provide leadership at the national level for implementation of NEDSS.

- Coordinate an approach to electronic reporting from large laboratories by serving as a point of contact. Develop, in consultation with partners, a secure, efficient capacity for multi-jurisdictional data brokering for electronic reporting from large laboratories that report to multiple jurisdictions. Work with states to define requirements, and to explore the potential and challenges of a unified approach to reporting from large laboratories to public health agencies.
In collaboration with partners, continue to develop, maintain and improve the NBS and develop PAMs.

ATTACHMENT 6
WEST NILE VIRUS

CDC Program Contact:
Tracey Badsgard: (970) 221-5290

Purpose

Assist state and local health departments to develop and implement effective surveillance for and laboratory diagnosis, prevention, and control of human infections with West Nile virus (WNV) and other arboviruses that occur in the U.S.

WNV has established itself in the U.S. for the foreseeable future. Since its introduction in 1999 to September 2004, 6,610 human cases of WNV neuroinvasive disease (WNND) and 625 deaths have been reported to ArboNet, the CDC electronic surveillance system. The high number of reported human WNV cases through a wide geographic area could be due to a number of factors, including lack of pre-emptive and aggressive mosquito control by the affected jurisdictions during the spring and summer months. From the fall of 1999 through October 1, 2004, WNV infection in animals or humans has been detected in all 48 continental U.S. states plus Washington, DC, and Puerto Rico.

The natural transmission cycle of WNV and other domestic arboviruses involves mosquitoes becoming infected by feeding on virus-infected birds or other animals. Through 2004, 58 different species of mosquitoes have been shown to be infected with WNV. These species include avian-, mammalian-, amphibian-, and reptilian-biting mosquitoes. The expanding WNV epizootic, which is most likely associated with bird migration, underscores the continued risk for WNV disease and emphasizes the need for continued vigilance for the spread of the virus. In addition, blood transfusion and organ transplant transmission of WNV was documented in 2002 for the first time. A total of 177 presumtively viremic donors of blood from 22 states have been reported to CDC in 2004 (as of Oct 5, 2004). Additional information may be found in MMWR articles, Emerging Infectious Diseases Journal articles, and other publications available at the following website:
http://www.cdc.gov/ncidod/dvbid/westnile/publications.htm

Funding Guidance
Grantees will be contacted individually regarding funding availability.

Recipient Activities

1. Develop or enhance bird, mosquito, human and equine surveillance activities, focusing on transmission of WNV, but including transmission of other medically important arboviruses. Surveillance activities should also include documenting human cases with novel routes of virus transmission. Activities should be consistent with published CDC guidelines entitled Epidemic/Epizootic West Nile Virus in the United States: Revised Guidelines for Surveillance, Prevention and Control, April 2003 - available via the CDC Web site at: http://www.cdc.gov/ncidod/dvbid/westnile/resources/wnv-guidelines-aug-2003.pdf

2. Conduct data analysis and interpret and disseminate results.

3. Establish or enhance capabilities to capture, identify and test mosquito vectors of WNV.

4. Establish or enhance capabilities for avian and vertebrate capture, identification, and testing for exposure to WNV.

5. Participate in Arbonet, the computerized national surveillance system developed to track activity of WNV and other arboviruses.

6. Enhance laboratory capacity to identify WNV infections in humans and other animal species. Testing protocols include but are not limited to human IgM and IgG enzyme-linked immunosorbent assay (ELISA), equine and other animal IgM ELISA, reverse-transcriptase polymerase chain reaction (RT-PCR), real-time RT-PCR, NASBA, antigen-detection ELISA, virus isolation techniques and virus identification using virus-specific monoclonal antibodies (requires BSL3 level containment).

7. Support prevention and educational activities for WNV and other arboviruses.

ATTACHMENT 7
GENERAL EPIDEMIOLOGY AND LABORATORY CAPACITY

Purpose
To improve epidemiology and laboratory capacity in areas not addressed in specific program areas above.

Funding Guidance
Amounts requested may vary depending on the level of activities proposed.

Recipient Activities
Identify gaps in current public health capacity that meet the purpose of this program announcement, but are not included in one of the above program components (1-6). Local needs, issues, and infectious disease problems may be addressed under this component. General infrastructure enhancements may also be addressed that increase the flexibility and ability of the public health system to effectively detect, prevent, and respond to national infectious disease priorities.

To participate as effective partners in epidemiology and laboratory capacity, public health laboratories must have Laboratory Information Management Systems (LIMS) that support not only their internal laboratory activities but also support real time electronic communication of laboratory results under some circumstances to other partners. The specifications which make this data exchange possible are contained in the Public Health Information Network functions and specifications (see http://www.cdc.gov/phin/).

Awareness of this critical need is important because there have been recent developments which could facilitate the availability of PHIN-compliant LIMS systems. Two recent evaluations of commercial LIMS software have identified products which are PHIN-compliant and could be adapted for state public health laboratory use. The commercial LIMS products are available on the GSA schedule. Copies of the LIMS software evaluations can be obtained by sending an email request to phintech@cdc.gov